Beef Sire Selection Recommendations

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Introduction

The Cattle Genetics Improvement Program has assisted Kentucky's beef producers in utilizing better genetics in their breeding program through increased educational efforts and providing cost-share dollars for bull purchases. Many beef producers have taken advantage of this program and they are starting to see the benefits of buying a better bull. The initial phase of the Genetic Improvement Program was to help producers understand the use of two primary tools available for sire selection: Expected Progeny Differences (EPD) and Breeding Soundness Exams (BSE). The next phase of the program will be to assist Kentucky's beef producers to target specific bulls for their operation, based on individual resources, management practices and marketing objectives.

The attached chart should be used to determine if a bull qualifies for cost-share based on his EPDs. The following information is to assist beef producers in finding the right bull for their operation.

The overall goal of the beef operation should be to increase net income. Net income is a balance between how much is spent on the operation and how much income the operation generates. Therefore, beef producers need to focus on increasing income while minimizing additional cost or reduce cost while trying to maintain income. Although this practice pertains to the entire beef operation, this article will concentrate on the impact of the bull.

Two practices are available to improve the genetics of your herd: crossbreeding and individual bull selection. Crossbreeding has a major economic impact on your herd and should be practiced by commercial cattlemen; however, this information will focus on purchasing beef bulls.

When looking for a bull to purchase for your operation it is important to realize that as you make progress to improve one trait you often lose ground in another trait. For example, as we select for increased growth, which has a positive impact on income, we usually inadvertently increase the mature size and maintenance costs of our cows through retaining replacements. Finding the balance between the productivity level of the cow (growth and milk) and the required energy to maintain her is very difficult and, if not done properly, will likely result in decreased reproduction. Research has shown that cow efficiency is dependent on the level of nutrition that they receive. Larger high-producing cows are the most efficient in very lush, high nutritional environments (Average Kentucky forages would not support this level of productivity) and smaller low-producing cows are the most efficient in limited nutritional situations. Under optimum nutrition there are very little differences between the breed types. Before you go buy a bull it is important to consider what you want to produce and what resources (primarily nutrition) you have available.

Bull Purchasing

When purchasing a bull there are four primary characteristics that should be assessed: reproductive soundness; structural soundness; visual evaluation; performance characteristics.

Reproductive Soundness – For a bull to have any value to a beef producer he must be reproductively sound. The best means to determine the reproductive soundness of a bull is through a breeding soundness exam. If a bull passes this exam he should have the physical capability to breed and settle cows. This exam does not measure desire and bulls should be observed for their interest in females in heat.

Structural Soundness – To be an efficient breeder a bull must be structurally sound. This means that he should move without pain or discomfort and should have appropriate angles at weight bearing joints.

Visual Evaluation – Many traits that are important to beef producers can only be evaluated through visual observation. These include, but are not limited to: disposition, horned/polled, color, muscling, body capacity, structure, sheath, and testicular development.

Performance Characteristics – The primary reason for purchasing a bull is the expected performance of his calves. If replacement females will be retained then this decision should not be short sided, because the impact will be long lasting. Breeds differ on their level of productivity; therefore, the first decision will be on breed type. Once a breed is determined, selection between bulls for performance should be based on the EPDs whenever possible. There is no such thing as the "Best Bull"; each individual beef producer must make that determination based on what they want to get from the bull. The following are some guidelines for finding bulls to meet some common needs of Kentucky beef producers. Depending on your goals and management the right bull for you may not be included in this list. To find out where a bull ranks in his breed refer to the EPD Percentile Table from the respective breed association (This can often be found on the internet).

Heifer Acceptable – This is a specialty-type bull that should be used when a high percentage of first-calf heifers are to be bred. This is one of the categories for the cost-share program and those figures should be used for Birth Weight or Calving Ease EPDs. Typically, easy calving bulls do not express as much growth in their calves. *To maintain an acceptable level of growth, bulls with extremely low weaning and/or yearling weight EPDs should be avoided*.

The recommendation for Birth Weight/Calving Ease for the following categories depends on how many first-calf heifers are to be bred. For increased security, choose a bull that meets the Heifer Acceptable category. If <u>any</u> heifers are to be bred then avoid the worst 50% of larger breeds and the worst 35% of smaller breeds or be prepared to watch those heifers closely during calving. If only mature cows are to be bred then avoid the worst 5-10% of the bulls for BW/CE.

Terminal – This is a specialty-type bull that should be used when replacement females will not be retained. The purpose of this bull is to produce calves with exceptional feeder calf performance. Therefore, milk can be disregarded and growth should be emphasized. *Upper extremes should be avoided if the cow size is large and there is danger of producing carcasses that are heavier than the accepted standard.*

Balanced Trait – This category is different than the broad category used for the cost-share program. Bulls that fit these recommendations should provide moderation for birth weights/calving ease, growth and milking ability. The purpose of this bull would be to produce calves that are acceptable feeder calves, while keeping the mature size and milk level of replacement females in moderation. Selecting bulls that rank between the 25% and 75% level in their breed for both growth and milking ability should achieve this goal.

Low Maintenance – This category is for producers that will be retaining and/or selling replacement females that they desire to have lower maintenance requirements. Unfortunately, beef breeds do not currently compute cow maintenance EPDs. Typically, cows that have smaller mature size and less milking ability have lower maintenance requirements. Selecting bulls with below average growth and milk values should produce replacement females that will have lower maintenance requirements. The trade-off is that their siblings, which will be sold as feeder calves, will have less growth as well. *It is recommended to avoid the lowest extremes for either growth or milking ability.*

High Productivity – Producers with extremely good management may consider bulls that will greatly increase individual calf productivity. This is easily accomplished by selecting bulls that are in the upper third of their breed for both growth and milk. Feeder calves produced from this mating should exhibit good growth and replacement females should have exceptional milking ability. The trade-off is that these cows will be larger and have higher maintenance costs. If these cows do not receive adequate nutrition then they will lose body condition and there will likely be reduced reproduction rates. *This option is not for everyone and total herd performance should take precedence over individual calf performance.*

Carcass Merit – Producers that will be retaining ownership of their calves and that are being paid for carcass merit should place additional emphasis on those traits. A Carcass Merit bull may easily fit one of the above categories, but would have the added responsibility of producing calves with acceptable carcass characteristics. Traits of economic importance would be carcass weight, marbling (% intra-muscular fat) and % retail product. The pricing scheme that the calves will be sold under will determine the level of emphasis to be placed on each trait. For example, if the calves are to be marketed on a “High Quality Grid” then emphasis would be placed on increasing marbling, while maintaining acceptable carcass weights. *Also, remember that as you increase carcass weight you also increase mature cow size of replacement females*.

Conclusions

Crossbreeding and bull selection have very important long-term economical impact on your herd. Selecting the right bull for your operation is a decision that includes setting production goals, analyzing your resources and management, and then locating the bull that best fits your situation. If done properly this process will take time and effort on your part, but the rewards can be significant.

2005 Kentucky Purchase/Lease/AI Program Qualifying Requirements

Maximum Birth Weight (BW) or minimum Calving Ease (CE)*; minimum Weaning Weight (WW) or Yearling Weight (YW) Expected Progeny Differences for each of three sire types.

	Heifer Acceptable	Terminal			Balanced Trait		
Breed	**BW (CE)**	**BW (CE)**	**WW**	**YW**	**BW (CE)**	**WW**	**YW**
Angus	**7 (CE)**	**-5 (CE)**	**35**	**65**	**1 (CE)**	**29**	**54**
Beefmaster	**-.4**	**.8**	**1**	**3**	**0**	**1**	**3**
Brangus	**.3**	**3.6**	**21**	**33**	**2.5**	**11**	**18**
Braunvieh	**-3.0**	**1.8**	**3**	**3**	**-.1**	**3**	**3**
Charolais	**-2.4**	**3.8**	**15**	**26**	**2.3**	**5.3**	**10**
Chiangus	**0.0**	**7.3**	**34**	**57**	**5.3**	**20**	**36**
Gelbvieh	**113 (CE)**	**98 (CE)**	**37**	**66**	**101 (CE)**	**29**	**54**
Hereford	**2.1 (CE)**	**-6.5 (CE)**	**36**	**61**	**-2.9(CE)**	**26**	**44**
Limousin	**9 (CE)**	**0 (CE)**	**35**	**65**	**4 (CE)**	**25**	**50**
Maine-Anjou	**0.2**	**6.2**	**39**	**79**	**4.8**	**31**	**67**
Red Angus	**6 (CE)**	**-2 (CE)**	**29**	**51**	**0 (CE)**	**19**	**33**
Red Poll	**-.1**	**2.6**	**2**	**1**	**.8**	**1**	**0**
Salers	**-.4**	**2.6**	**7**	**11**	**.9**	**7**	**11**
Santa Gertrudis	**0**	**2.0**	**5**	**6**	**.4**	**5**	**6**
Senepol	**-.9**	**2.4**	**5.8**	**7.2**	**1**	**-1.5**	**-2.1**
Shorthorn	**.1**	**4.9**	**16**	**26**	**2.8**	**9**	**15**
Simmental	**11.8 (CE)**	**.7 (CE)**	**34**	**57**	**4.6 (CE)**	**25**	**43**
Tarentaise	**4 (CE)**	**-4 (CE)**	**2**	**9**	**0 (CE)**	**2**	**9**

*__Calving Ease EPD__ ranks bulls on their ability to avoid calving problems when bred to heifers, higher values indicate greater calving ease and are desirable. This EPD is preferred over Birth Weight when available.

Please refer to each breeds' **EPD Percentile Table** to determine where a bull ranks within his breed for each of the traits. This will assist in determining the level of productivity to expect in the bull's calves.

For additional information or for additional breeds, contact your county Agriculture and Natural Resources Extension Agent or Dr. Darrh Bullock, 804 WP Garrigus Bldg, Lexington, KY 40546; (859) 257-7514; dbullock@uky.edu